SECTION 02605 - JOINT SEALANTS FOR PAVEMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The General Provision of the contract, including the General Provisions for Construction Projects (2016), Special Provisions, and General Requirements of the Specifications, apply to the work specified in this section. This Section shall be in accordance with FAA Specification Item P-605: Joint Sealants for Pavements, as included as an attachment to this Section.

1.2 DESCRIPTION OF WORK

A. This Section shall consist of providing and installing a resilient and adhesive joint sealing material capable of effectively sealing joints in pavement; joints between different types of pavements; and cracks in existing pavement.

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. Section 02101 – Preparation and Removal of Existing Pavements; FAA Specification Item P-101.

B. Section 02401 – Asphalt Mix Pavement; FAA Specification Item P-401.

1.4 REFERENCES

A. Federal Aviation Administration (FAA)

1. FAA Specification Item P-605: Joint Sealants for Pavements.

1.5 SUBMITTALS

A. Submit in accordance with Section 01300 – Submittals.

B. List of proposed equipment to be used in performance of the work, including descriptive date, shall be submitted in accordance with FAA Specification Item P-605, paragraph 605-3.2.

PART 2 - PRODUCTS

2.1 Joint sealants: in accordance with FAA Specification Item P-605, paragraph 605-2.1.

2.2 Backer Rod: in accordance with FAA Specification Item P-605, paragraph 605-2.2.

2.3 Asphalt Concrete Spall Repair. In accordance with FAA Specification Item P-605, paragraph 605-2.4.

PART 3 - EXECUTION

3.1 Construction methods shall be in accordance with FAA Specification Item P-605.

PART 4 - MEASUREMENT AND PAMENT

4.1 METHOD OF MEASUREMENT

A. Method of measurement and payment shall be in accordance with FAA Specification Item P-605, paragraph 605-4.1.

4.2 BASIS OF PAYMENT

A. Basis for payment shall be in accordance with FAA Specification Item P-605, paragraph 605-5.1.

PART 5 - ATTACHMENTS

5.1 FAA Specification Item P-605 Joint Sealants for Pavements.

Item P-605 Joint Sealants for Pavements

DESCRIPTION

605-1.1 This item shall consist of providing and installing a resilient and adhesive joint sealing material capable of effectively sealing joints in existing asphalt concrete pavement; joints between different types of pavements; and prepared cracks in existing asphalt pavement.

MATERIALS

605-2.1 Joint and Crack Sealants. Joint and Crack sealant materials shall meet the requirements of ASTM D6690, Type I, including the Appendix Provisions.

Each lot or batch of sealant shall be delivered to the jobsite in the manufacturer's original sealed container. Each container shall be marked with the manufacturer's name, batch or lot number, the safe heating temperature, and shall be accompanied by the manufacturer's certification stating that the sealant meets the requirements of this specification.

605-2.2 Backer rod. The material furnished shall be a compressible, non-shrinking, non-staining, non-absorbing material that is non-reactive with the joint and crack sealant in accordance with ASTM D5249. The backer rod material shall be 25% ± 5 % larger in diameter than the nominal width of the joint. The backer rod material shall have a melting point at least 5°F (3°C) greater than the pouring temperature of the sealant being used when tested in accordance with ASTM D789. The material shall have a water absorption of not more than 5% of the sample weight when tested in accordance with ASTM C509.

605-2.3 Bond breaking tapes. Not Used.

605-2.4 Asphaltic Concrete Pavement Spall Repair. Delcrete Elastomeric Concrete (Delcrete) or approved equal. Each unit consists of twelve (12) bags of sand (20 pounds each), twelve (12) bags of fiber-glass (1.5 pounds each), two (2) 5-gallon pails of Part A (clear), and one (1) 5-gallon pail of Part B (black). Each sand/fiberglass box weighs approximately 400 lbs. Total unit weight is approximately 550 lbs. Each unit yields approximately 27.7 mixed gallons and fills a void of approximately 3.7 cubic feet.

CONSTRUCTION METHODS

605-3.1 Time of application. Joints and cracks shall be sealed as soon after completion of the curing period, if applicable, and before the pavement is opened to traffic, including construction equipment. The pavement temperature shall be 50°F and rising at the time of application of the poured joint sealing material. Do not apply sealant if moisture is observed in the joint.

605-3.2 Equipment. Machines, tools, and equipment used in the performance of the work required by this section shall be approved before the work is started and maintained in satisfactory condition

at all times. Submit a list of proposed equipment to be used in performance of construction work including descriptive data, 14 days prior to use on the project.

a. Tractor-mounted routing tool. Provide a routing tool, used for removing old sealant from the joints, of such shape and dimensions and so mounted on the tractor that it will not damage the sides of the joints. The tool shall be designed so that it can be adjusted to remove the old material to varying depths as required. The use of V-shaped tools or rotary impact routing devices will not be permitted. Hand-operated spindle routing devices shall only be used if approved by RPR to clean and enlarge random cracks.

b. Concrete saw. Provide a self-propelled power saw to clean, cut, and enlarge all joints and cracks to the depths and widths in accordance with Contract Plan details. Power saw shall utilize water-cooled diamond saw blades for cutting operations. If pavement cut edges are not sharp and resulting edges are chipped, then Contractor to replace diamond saw blades at the direction of the RPR.

c. Sandblasting equipment. Sandblasting is not allowed.

d. Waterblasting equipment. The Contractor must demonstrate waterblasting equipment including the pumps, hose, guide and nozzle size, under job conditions, before approval in accordance with paragraph 605-3.3. The Contractor shall demonstrate, in the presence of the RPR, that the method cleans the joint and does not damage the joint.

e. Hand tools. Hand tools may be used, when approved, for removing defective sealant from a crack and repairing or cleaning the crack faces. Hand tools should be carefully evaluated for potential spalling effects prior to approval for use.

f. Hot-poured sealing equipment. The unit applicators used for heating and installing ASTM D6690 joint sealant materials shall be mobile and shall be equipped with a double-boiler, agitator-type kettle with an oil medium in the outer space for heat transfer; a direct-connected pressure-type extruding device with a nozzle shaped for inserting in the joint to be filled; positive temperature devices for controlling the temperature of the transfer oil and sealant; and a recording type thermometer for indicating the temperature of the sealant. The applicator unit shall be designed so that the sealant will circulate through the delivery hose and return to the inner kettle when not in use.

g. Cold-applied, single-component sealing equipment. Not Used.

h. Asphalt Concrete Pavement Spall Repair.

1. A 3/4” heavy duty, slow speed, high torque drill or 3/4” hp mixer with mixing paddle manufactured Eibenstock Model EHR 18.1 S Mixer or equivalent.
2. 5-gallon buckets, mixing bowls/pails (2)
3. Plastic measuring beakers (min. capacity 5000 ml)
4. Notched trowels for finishing, and scrapers (margin or brick trowels) for mixing bowls or pails
5. Personal protective equipment (safety glasses, gloves, safety vests, etc.).

605-3.3 Preparation of joints, cracks and spalls. Pavement joints, cracks and spalls for application of material in this specification must be dry, clean of all scale, dirt, dust, curing compound, and other foreign matter. The Contractor shall demonstrate, in the presence of the

RPR, that the method cleans the joint/prepared crack/spall and does not damage the joint/prepared crack/spall.

a. Sawing. All joints and cracks shall be sawed in accordance with specifications and plan details. Immediately after sawing the joint, the resulting slurry shall be completely removed from joint/prepared crack and adjacent area by flushing with a jet of water, and by use of other tools as necessary.

b. Sealing. Immediately before sealing, the joints shall be thoroughly cleaned of all remaining laitance, protrusions of hardened asphalt concrete, old sealant and other foreign material from the sides and upper edges of the joint/prepared crack space to be sealed. Cleaning shall be accomplished by waterblasting as specified in paragraph 605-3.2. The newly exposed asphalt concrete joint/prepared crack edge shall be clean. Sandblasting shall not be used. After final cleaning and immediately prior to sealing, blow out the joints with compressed air and leave them completely free of debris and water. The joint faces shall be surface dry when the sealant is applied.

c. Backer Rod. Backer material shall be installed as shown on the plan details to prevent the entrance of the sealant below the specified depth. Take care to ensure that the backer rod is placed at the specified depth and is not stretched or twisted during installation.

d. Bond-breaking tape. Not Used.

e. Asphalt Pavement Spall Repair.

A. Repair Area to be prepared in accordance with FAA Specification P-101.
B. Mixing of repair material, Delcrete or approved equal.
    1. There are 12 batches of approximately 2.31 gallons in each unit.
    2. Pour 3000 ml Part A and 1500 ml Part B into separate beakers (use level line).
    3. Add Part A and Part B to mixing bowl. Start mixer at low speed.

605-3.4 Installation of sealants and spall repairs. Joints and prepared cracks and spall repairs shall be inspected for proper width, depth, alignment, and preparation in accordance with these Specifications and plan details and shall be approved by the RPR before sealing is allowed. Sealants and spall repairs shall be installed in accordance with the following requirements:

a. Sealants in joints and prepared cracks. Immediately preceding, but not more than 50 feet ahead of the joint sealing operations, perform a final cleaning with compressed air. Fill the joints from the bottom up to specified depth shown on the contract plans below the top of pavement surface; or bottom of groove for grooved pavement. Remove and discard excess or spilled sealant from the pavement by approved methods. Install the sealant in such a manner as to prevent the formation of voids and entrapped air. In no case shall gravity methods or pouring pots be used to install the sealant material. Traffic shall not be permitted over newly sealed pavement until authorized by the RPR. When a primer is recommended by the manufacturer, apply it evenly to the joint faces in accordance with the manufacturer's instructions. Check the joints frequently to ensure that the newly installed sealant is cured to a tack-free condition within the time specified and prior to opening pavement to aircraft operations.

b. Spall repairs.

A. Apply repair material, Delcrete or approved equal, from mixing bowl into cleaned and dry repair area.
B. Install material in such a manner to prevent voids and entrapped air.
C. Hand trowel material to match surrounding existing grade.
D. Consolidate the material by tamping or by other means approved by the RPR.
E. Allow material to cure per manufacturers recommendations.

605-3.5 Inspection. The Contractor shall inspect the joint sealant for proper rate of cure and set, bonding to the joint walls, cohesive separation within the sealant, reversion to liquid, entrapped air and voids. Sealants exhibiting any of these deficiencies at any time prior to the final acceptance of the project shall be removed from the joint, wasted, and replaced as specified at no additional cost to the airport.

605-3.6 Clean-up. Upon completion of the project, remove all waste and unused materials from the site and leave the pavement in a clean condition with no debris.

METHOD OF MEASUREMENT

605-4.1 Joint and crack sealing and spall repair shall be measured by the linear foot of joint, crack, and spall repair completed in place and accepted by the RPR.

BASIS OF PAYMENT

605-5.1 Payment for joint and crack sealing and spall repair shall be made at the contract unit price per linear foot. The price shall be full compensation for furnishing all materials, for all preparation, delivering, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item No.	Description	Unit
02605.1	Joint and Crack Sealants for Pavements	Linear Foot
02605.2	Asphalt Concrete Pavement Spall Repair	Linear Foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D789	Standard Test Method for Determination of Relative Viscosity of Polyamide (PA)
ASTM D5249	Standard Specification for Backer Material for Use with Cold- and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints
ASTM D6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt.

Advisory Circulars (AC)

AC 150/5340-30 Design and Installation Details for Airport Visual Aids

END OF ITEM P-605

--------END OF SECTION 02605--------